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Standard squares should be imprinted upon each negative and the time of exposure of the standard squares should equal the time the plate is to be exposed to the corona. The difference in intensity of the standard squares may be produced by altering the distance of the plate from the source of light. In this way the conditions under which the standard squares are imprinted will agree with those under which the corona is photographed.

Finally, it might be well, though not so essential, to use a color screen or some other scheme to enable us to say definitely for what wave-length our results are quoted.

REYNOLD K. YOUNG.

THE D. O. MILLS OBSERVATORY.

Mr. D. O. MILLS's original gift to establish an observing station in the southern hemisphere provided for the active work of the observatory during the years 1903-06. In 1905 Mr. MILLS made provision for a second period of activity, from 1906 to 1911. After Mr. MILLS's lamented death, early in 1910, his son Mr. OGDEN MILLS, generously agreed to support the D. O. Mills Observatory during the years 1911 and 1912. It gives me pleasure to announce a recent gift from Mr. OGDEN MILLS in support of the observatory during a fourth period, embracing the years 1913 and 1914.

The staff of the observatory, located on the summit of Cerro San Cristobal, near Santiago, Chile, consists of Acting Astronomer JOSEPH H. MOORE, in charge; Mr. ROSCOE F. SANFORD, assistant, and Mrs. JOSEPH H. MOORE. Mr. GEORGE F. PADDOCK, who for five years was chief assistant at the observatory, has remained on the staff during the current year as a voluntary assistant, making his principal duties the investigation of certain spectroscopic binary stars.

W. W. CAMPBELL.

NOTE ON THE NUMBER OF OPTICAL PAIRS AMONG DOUBLE STARS WHOSE ANGULAR SEPARATION IS 5″ OR LESS.

In his "General Catalogue of Double Stars," BURNHAM has given diagrams for all pairs in which the observed motion has been sufficient to permit conclusions to be drawn as to its character. I have examined these diagrams to ascertain how many pairs there are among double stars with apparent separation of less than five seconds of arc which are known to be accidental—i. e. not physically related. The net result of my investigation is given in the following table, the successive columns of which give the catalogue number, the name of the pair, the minimum separation of the components, with its approximate date, and the present separation:—

Bu.	Star.	Minimum Distance.		Present Distance.	
216	H 1968	2″ in	1900	2″+	
248	Σ 32	2+	1670	20 +	
368	Σ 49	< 0.5	1675	6	Binary?
1050	Σ 147	2	1660	25 +	
1492	Σ 328	5	2200	20 +	
1595	Σ 343	2	1600	28 +	
2198	Σ 547	< 2	1910	2 —	Binary?
3053	S 503	< 3	1888	13 +	
3844	OΣ 165	< 3	1870	4 +	
4265	Σ 1136	5	2000	8 —	
4743	Σ 1263	2	1820	55 +	
4941	Σ 1316 AC	4	1960	7 +	
4987	Σ 1327 AB	< 5	2050	11	
4999	Σ 1329	5	2075	19	
5706	Σ 1576	2.+	1855	24	
6161	Σ 1641	5	1760	10	61 *Cygni* type?
7320	OΣ 297	1	1925	5 —	
7636	OΣ 311	4 +	1940	6 —	
7640	β 815	3	1845	10	
7858	Σ 2120	2 +	1850	9	61 *Cygni* type?
8245	Ho 72	< 2	1870	10	
8830	Σ 2400	< 2	1850	4 —	
9043	Σ 2455	< 4	1890	4 —	Binary?
9282	Σ2515	< 4	1980	9 +	
10746	Σ 2760	< 1	1960	5 +	
11472	OΣ 460	< 2	1750	8 +	
11715	Sh 345	2	2050	6	61 *Cygni* type?
11930	OΣ 477	4 +	1894	5 +	
12340	Σ 3008	3	1930	3 +	

The table has twenty-nine entries, at least six of which may, in my judgment, ultimately prove to be physical pairs. Doubtless another investigator would compile a somewhat different list from an examination of the same data, for, in many cases, the decision as to the nature of the motion is a matter of judgment. From the last column of the table it appears that only seven of these pairs are under 5″ at the present time, and from the two preceding columns we find that no period of twenty-five years contains more than seven pairs under this distance. Allowing for uncertainties in the tabulation and in the measures and for the fact that BURNHAM's volume is complete only to — 30° declination, we may fairly say that *not more than ten double stars with distances at present under 5″ are known to be optical pairs.*

BURNHAM's catalogue contains 13,665 entries. Fully 5,000 of these pairs are of comparatively recent discovery and less than half of the remainder are under 5″. The data in our table may therefore be considered to be drawn from about 3,500 stars under 5″, and the conclusion, that we may expect one pair in 500 double stars under 5″ to be merely optical, is probably of the right order. I have found from my double-star survey that one star in eighteen of those as bright as 9.0 magnitude is a double with an angular separation of less than 5″. This gives a total of about 12,000 such pairs in the entire sky, and we shall not be far wrong if we say that only twenty-five of these are not physical systems. R. G. AITKEN.

March 15, 1912.

A METHOD OF TESTING OPTICAL GLASS.

It frequently happens that a large object-glass or prism, after going through the long and expensive process of grinding, polishing, and figuring, must be rejected because of internal defects in the glass. Not long ago the Solar Observatory received from a celebrated firm in Germany a large prism which was so defective that the D_1 line seen through the upper part of the prism fell upon the D_2 line observed through the lower part. The figure of the surfaces was excellent, and the whole difficulty lay within the glass. Subsequent attempts to obtain large blocks of glass for prisms have been equally unsuccessful, and as the same difficulty has been experienced with several objectives (including one of 12 inches aperture for the 150-foot tower telescope), the importance of avoiding the loss of time and the expense thus involved is apparent. It would seem probable that the following simple process of testing glass